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i2 SUMMIT

PATHOLOGY OF DRUG-ELUTING STENTS IN SAPHENOUS VEIN GRAFT LESIONS

i2 Poster Contributions
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Session Title: DES I and Acute Coronary Syndromes
Abstract Category: PCI - DES
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Objectives: The purpose of this study was to compare the pathological response of saphenous vein grafts (SVGs) to drug eluting stents (DES) and bare metal stents (BMS).

Background: Atherosclerotic saphenous vein grafts treated with BMS has been associated with high rates of restenosis. Clinically a greater efficacy of DES has been demonstrated than BMS. No pathologic studies of comparison of DES and BMS deployed in atherosclerotic SVG have been reported.

Methods: From CVPath registry of human coronary artery stent lesions, 9 saphenous vein graft lesions treated with a drug-eluting stent implanted >30 days were identified and age and duration matched with bare metal stented vein grafts. All stents were radiographed prior to embedding in methylmethacrylate and segmented at 2 to 3 mm intervals and sectioned at 5 microns followed by staining with H&E and Movat pentachrome. Computer guided morphometric and histological analyses were performed.

Results: Mean age (67±7 vs. 71±10 years) and duration (725±362 vs. 441±455 days) of BMS and DES was similar. Radiograph images demonstrated that 1 (Bx Velocity) of 9 BMS and 5 (4 Cypher and 1 Taxus) of 9 DES had minor fractures. DES lesions demonstrated a decrease in neointimal area (2.0±0.9 vs. BMS 4.6±2.4 mm2; p=0.01), neointimal thickness (p=0.02), and an increase in the percentage of uncoverage strut (31±32 vs. 5±10%; p=0.03) with greater fibrin accumulation as compared to BMS group. Necrotic core penetration (56% for both groups) with superimposed atherosclerotic change within the neointimal region (DES-56% vs. BMS-67%) was similar in both groups. Stent thrombosis was more frequent in DES than BMS (33 vs. 11%).

Conclusions: DES stenting of SVGs showed delayed healing as compared to BMS, and were more often associated with stent thrombosis. Moreover, necrotic core penetration of stent struts and atherosclerotic change post stenting was high in both groups. However, long-term results are needed to establish greater efficacy of DES.